

CURRICULUM VITAE OF ROBERT MARK WIGHTMAN

- ADDRESS:** Department of Chemistry
C.B. 3290 Venable Hall
The University of North Carolina at Chapel Hill
Chapel Hill, N.C. 27599-3290
Telephone: (919) 962-1472
Email: rmw@unc.edu
- BORN:** July 4, 1947, Dorchester, Dorset, England
- EDUCATION:** B.A. Degree with honors -Erskine College, Due West, South Carolina, 1968
Ph.D. Degree -The University of North Carolina at Chapel Hill, 1974, with Royce Murray
Postdoctoral Associate, Department of Chemistry, University of Kansas, 1974-1976, with R. N. Adams
- PRESENT POSITIONS:** W. R. Kenan, Jr., Professor of Chemistry, UNC-CH, 1989-present
Faculty, Neurobiology Curriculum, UNC-CH, 1989- present
External Faculty, Neuroscience Center, UNC, 2001-present
- FORMER POSITIONS** Department of Chemistry, Indiana University, Bloomington, IN: 1976-1982, Assistant Professor; 1982-1985; Associate Professor; 1985-1989; Full Professor
Research Associate, London Hospital Medical College, Univ. of London, UK. 1984.
Visiting Professor, Duke University Medical Center, Durham, NC, 1997.
Visiting Professor, Anatomy Department, Cambridge University, UK, 2004.
By Fellow, Churchill College, Cambridge University, UK, 2011.
- HONORS:** E. A. Sloan Chemistry Award, Erskine College
National Institutes of Health Research Career Development Award (1979-1983)
Alfred P. Sloan Fellowship (1981-1983)
Jacob Javits Neuroscience Investigator Award, NIH (1989)
Chair, Gordon Research Conference on Electrochemistry (1992)
International Program Committee, 7th Catecholamine Symposium
Chemical Instrumentation Award, Analytical Chemistry Division of ACS (1994)
David Graham Award, Physical Electrochemistry Division of the Electrochemical Society (1995)
Charles N. Reilley Award, Society for Electroanalytical Chemistry (1996)
Simon Guggenheim Research Fellowship (1997)
Pittsburgh Analytical Chemistry Award (1997)
Erskine College Academic Hall of Fame (1999)
Electrochemistry Award, Analytical Division of ACS (2001)
Fellow, AAAS (2002-present)
Faraday Medal, Electrochemistry Group, Royal Society of Chemistry (2005)
R. N. Adams Award in Bioanalytical Chemistry, Pittsburgh Conference (2006)
ACS Analytical Chemistry Award (2008)
Sir Bernard Katz Award for Excellence in Research on Exocytosis and Endocytosis, Biophysical Society (2010)
Herty Medal, Georgia section of the ACS (2011)
- EDITORIAL BOARDS:** Biosensors & Bioelectronics (1988-2005)
Instrumentation Advisory Panel, Analytical Chemistry (1988-1990)
Journal of Electroanalytical Chemistry (1999-2004)
Journal of Pharmacology and Experimental Therapeutics (1999-2000)
Analytical Chemistry (2001-2003)
Synapse (2004-present)
Annual reviews of Analytical Chemistry (2007-2010)
- SELECT SERVICE:** Chair, Gordon Research Conference on Electrochemistry (1992)
UNC-CH Administrative Board of the Library (1991-1994)
UNC-CH Pardue Chair Search Committee (1991)
UNC-CH Chair, Distinguished Term Search Committee, 1993
President, Society for Electroanalytical Chemistry (1997-1999)

Enabling Bioanalytical and Biophysical Technologies (EBT) Study Section, NIH (2001-2005); Chair 2003-2005

UNC-CH Advisory board, Postdoctoral Office (2006-2014)

UNC-CH College of Arts and Sciences Dean Search (2006-2007)

UNC-CH Committee on Appointments, Promotion, and Tenure (2006-2009)

UNC-CH Building Naming Committee (2008-present)

UNC-CH University Research Council, subcommittee on Physical Sciences and Mathematics (2008-2011)

Chair, Faculty Search Committee, Department of Chemistry, UNC-CH (2010-2011)

Departmental vice chair for undergraduate studies (2012-2014)

PROFESSIONAL Society for Neuroscience

ORGANIZATIONS: American Chemical Society (Alternate Counselor, Analytical, 1998-2001)

Society for Electroanalytical Chemistry (Board of Directors, 1985-1990; Secretary, 1985)

Electrochemical Soc., Executive committee, Physical Electrochem. (1987-1989)

American Society for Neurochemistry

RESEARCH Chemical communication between neurons

INTERESTS Voltammetric sensors

FORMER GROUP MEMBERS:

Ph.D. Graduates, present positions: Linda A. Powell (1980), DuPont; Mark A. Dayton (M.D., Ph.D, 1981) Physician, Bloomington, IN.; Kenneth J. Stutts (1982), Dow Chemical Co.; Andrew G. Ewing (1983), Faculty, University of Gothenburg, Sweden.; W. Lowry Caudill (1983); James C. Bigelow (1985), Faculty, Idaho State University; Jonathon O. Howell (1985) BAS; Paul M. Kovach (1986) Eli Lilly; Robert L. Wilson (1986) Proctor & Gamble; Werner G. Kuhr (1986) Zetacore; Mark R. Deakin (1986) Chemist, U.S. Army; Eric W. Kristensen (1987) Abbott Labs; Leslie J. May (1988) Dow Chemical Co.; David O. Wipf (1989) Faculty, Miss. State Univ.; John E. Baur (1990) Faculty, Illinois State Univ.; Joan E. Bartelt (1990) DuPont; David J. Leszczyszyn (M.D., Ph.D, 1990), Faculty, Medical College of Virginia; Donna J. Wiedemann (1991), Proctor and Gamble; Jayne B. Zimmerman (1991) Rohm-Pollenc; David Niehaus (1992) Dupont; Kirk Kawagoe (1992) Fresno City College; Jeffrey Jan-kowski (1993) Faculty, North Central College; Edward Ciolkowski (1993) Upjohn; Sara Jones (1994) Faculty, Wake Forest University; Timothy Schroeder (1994) Proctor and Gamble; Jennifer Finnegan (1995) Glaxo; Karolyn Maness (1995) Upjohn; Karin Pihel (1996) Bayer; Paula Cahill (1996) Eastman Chemical Co; Quan Xin (1997), DuPont Pharmaceutical; Melissa Bunin (1998); Eric Travis (1999) Glaxo; Spencer Hochstetler (1999) Eastman Chemical Co.; Michaux Kilpatrick (MD, PhD, 1999); Darren Michael (2000); Joshua Joseph (2000) Proctor and Gamble; Michelle Mundorf (2001) AAI; Petrise Runnels (2001); Erin McDonald (2001) Faculty, Creighton University; Kevin Troyer (2002), Intel; Russell Maus (2002) Merck; Jill Venton (2002) Faculty, University of Virginia; Samuel Forry (2003) NIST; Michael Heien (2005) Faculty, University of Arizona; Garret Stuber (2005) Faculty, UNC-CH; Jacob Ketter (2005) Gamry; Melissa Villaneuva (2006) Medical Student; Andre Hermans (2007) Merck; Andrew Seipel (2007) Postdoc, NIEHS; Justin Kita (2008) FBI; Charles Miller (2008) Eastman Chemical Co, Brian Kile (2009) FBI, Keith Thornley (2009), Jelena Petrovic (2009), Manna Beyene (2009), Natalie Herr (2010); Richard Keithley (2011) Faculty, Roanoke College; Pavel Takmakov (2011) FDA; Paul Walsh (2012) Merck, Anna Belle (2014) Lawrence Livermore National Lab, Elyse Dankoski (2014); Beth Bucher (2014) Harvard Apparatus.

M.S. Students. (positions): David S. Brown (1987), Cardinal Health.; Mark Philips (1989), Baxter Travenol; Richard White (1990), Eli Lilly; Jodi Kawagoe (1990); Fred Rea (1993); Brad Jackson (1994) BAS; George Mickelson (1996), Ernest Ritchie (1997), Salisbury, NC High School, Mike Logman (2000); Harvey Fries (2001) Merck; Andrew Kennedy (2001); Rebecca Catahan (2002) Glaxo; Joette Russell (2002); Jacqueline Murray (2004); Leah Buhler (2004) Merck, Jennifer Ariansen (2011).

Postdoctoral Research Associates (positions) : Kenneth G. Wehmeyer (1983-1984), Proctor & Gamble; Richard Kelly (1984-1986), Faculty, East Stroudsburg University; Paul Hale (1986-1987), Moltech Corporation; Adrian C. Michael (1987-1989), Faculty, Univ. of Pittsburgh; Steven M. Drew (1989-1990), Faculty, Carleton College; Robert T. Kennedy (1989-1991) Faculty, University of Michigan; Maryanne Collinson (1992-1994) Faculty, Virginia Commonwealth University; Paul Garris (1990-1995) Faculty, Illinois State University; David Walker (1994-1996) Duke University; Coury Curtis (1996-1998) Merck; Brad Bath (1999-2000) NPS Pharmaceuticals; Andrew Slaterbeck (1998-2000), U.S. Army; Eugeny Budykin (1997-2000) Wake Forest University; Heidi

Martin (2000-2002) Faculty, Case Western University; Paul Phillips (1999-2004) Faculty, University of Washington; Donita Robinson (2000-2005) Faculty, UNC-CH; Amina Khan (2003-2004) Research Associate, University of Pittsburgh; Christy Haynes (2003-2005) Faculty, University of Minnesota; Michael Johnson (2002-2005) Faculty, University of Kansas; Greg McCarty (2004-2005) Faculty, North Carolina State University, Joseph Cheer (2003-2006) Faculty, University of Maryland; Leslie Sombers (2004-2008) Faculty, NC State University; Brandon Aragona (2004-2008) Faculty, University of Michigan; Nii Addy (2007-2010) Faculty, Yale University; Thomas Guillot (2009-2011) Emory University, Parastoo Hashemi (2008-2011) Faculty, Wayne State University, Jinwoo Park (2008-2012), Faculty, University of Buffalo; Fabio Cacciapaglia (2007-2012) Harvard Apparatus, Zoe McElligott (2009-2012) Research Faculty, UNC-CH; Martin Edwards (2011-2013) Postdoc U. Utah, Susan Carroll (2011-2014) ITG Isotope Technologies Garching.

Visiting Faculty: Christian Amatore (1984), Ecole Normale Superieure, Paris, France; George Rebec (1985-1986) Indiana University; Royce Engstrom (1986-1987), Univ. of South Dakota; Paul Flowers (1990, 1996, 2012), Pembroke State University; Paolo Pastore (1993) University of Padova, Padova, Italy; Ronald Schroeder (1994) Wayne State University; Ricardo Borges (1994) University of La Laguna, Tenerife, Spain; Mark Anderson (2000) Virginia Technical University; Paul Garris (2001-2002) Illinois State University

PRESENT GRADUATE STUDENTS:

Megan Fox, Caddy Hobbs, Justin Johnson, Douglas Kirkpatrick, Nathan Rodeberg, Lindsay Walton

PRESENT SENIOR SCIENTIST:

Catarina Owesson-White

DISTINGUISHED LECTURESHIPS SINCE 2003:

Gordon Research Conferences on Catecholamines (2003, 2007, 2013); Invited lecturer, ACS Meeting (2005-2008); Gordon Research Conference on Electrochemistry (2003); Griffin Lecture, University of New Orleans (2003); Symposium speaker, Pittsburgh Conference, (1994-2008, 2010-2015), Frontiers in Chemistry, Department of Chemistry, Case Western Reserve University (2003); 35th Oak Ridge Meeting, American Association of Clinical Chemistry, Arlington, VA (2003); American Vacuum Society (2003), Watkins Visiting Professor, Wichita State University (2003), Amatore Award Symposium, Ecole Normale Superieure, Paris (2003); Iddles Lecturer, University of New Hampshire (2004), Zangweil Club, University of Cambridge (2004), Plenary Lecturer, National Convention, Royal Australian Chemical Institute (2005), Faraday Lecture, Electrochemical Group, Royal Society of Chemistry (2005, 2007), Welch Conference on Chemical Research (2005), Symposium on Drug Abuse, University of Minnesota (2006), International Conference on In Vivo Methods (2006), Pavlovian Society (2006), National Institutes of Drug Abuse (2006), Brain Reward Systems Symposium (2007), International Symposium on Chromaffin Cell Biology (2007), 4th Echems Meeting (2008), Foster Chemistry Colloquium Speaker, University of Buffalo (2008), Pasteur Institute (2008), Symposium on Drug Abuse, Kunming China (2008), Okinawa Institute of Science and Technology (2008), Amy-Mellon Lecture, Purdue University (2008), IDEAS Symposium, ECS (2008), Spicer Lecturer, Georgia Institute of Technology (2009), Mather Lecturer, Indiana University (2009), Workshop on Addiction, Cold Spring Harbor (2009), Keynote Lecturer, Monitoring Molecules in Neuroscience(2010. 2012), NIDA miniconvention, San Diego (2010); Boomer Lecturer, University of Alberta (2011); Distinguished Lecturer, Scripps Institute (2012), Basal Ganglia summer school, Italy (2012), Werth Lecturer, Concordia College (2012), Plenary Lecturer, Catecholamine Symposium (2012), Festival of Neuroscience, London (2013), Gerard Lecturer, UC Irvine (2013), Fisher Lecturer, Roanoke College (2014).

CURRENT FUNDING:

“Electroanalysis of Neurotransmitters and Modulators” NIH, 2/2010 to 1/2015, \$ 1,118,000.

“Dynamics of In Vivo Dopamine Release” NIH, 3/2013 to 2/2018, \$ 1,250,000

“Electrochemical tools to measure local cerebral blood flow and metabolism,” NIH, 3/2012-2/2017, \$1,250,000

PUBLICATIONS: Author of more than 390 refereed articles; h index = 99.

PUBLICATIONS

1. Computer Controlled Rapid Scanning Stop Flow Spectrometer, R. M. Wightman, R. L. Scott, C. N. Reilley, R. W. Murray, J. N. Burnett, *Anal. Chem.*, 46, 1492-1499 (1974).
2. Electrochemical Generation of Metal Dendrites as Field Desorption Emitter Micro-needles, R. M. Wightman, D. M. Hinton, M. C. Sammons, M. M. Bursey, *Int. J. Mass Spectrom. Ion Phys.*, 17, 208-210 (1975).
3. Oxidative Interactions of 6-Hydroxydopamine with CNS Constituents, Y. O. Liang, R. M. Wightman, P. Plotsky, R. N. Adams. In: *Chemical Tools in Catecholamine Research*; Elsevier: New York, V. 1, pp. 15-22 (1975).
4. Protonation Kinetics and Mechanism for 1,8-Dihydroxyanthraquinone and Anthraquinone Anion Radicals in Dimethylformamide Solvent, R. M. Wightman, J. R. Cockrell, R. W. Murray, J. N. Burnett, S. B. Jones, *J. Am. Chem. Soc.*, 98, 2562-2570 (1976).
5. Intracyclization Rates of 6-Hydroxydopamine and 6-Aminodopamine Analogs Under Physiological Conditions, C. L. Blank, R. L. McCreery, R. M. Wightman, W. Chey, R. N. Adams, J. R. Reid, E. E. Smisman, *J. Med. Chem.*, 19, 178-180 (1976).
6. Catechol-o-Methyl Transferase, IX. Mechanisms of Inactivation by 6-Hydroxy-dopamine, R. T. Borchardt, J. R. Reid, D. Thakker, Y. O. Liang, R. M. Wightman, R. N. Adams, *J. Med. Chem.*, 19, 1201-1209 (1976).
7. Monitoring of Transmitter Metabolites by Voltammetry in Cerebrospinal Fluid Following Neural Pathway Stimulation, R. M. Wightman, E. R. Strobe, P. Plotsky, R. N. Adams, *Nature*, 262, 145-146 (1976).
8. Competitive Oxidation of 6-Hydroxydopamine by Oxygen and Hydrogen Peroxide, Y. O. Liang, R. M. Wightman, R. N. Adams, *Eur. J. Pharmacol.*, 36, 455-458 (1976).
9. Liquid Chromatographic Analysis of Endogenous Catecholamine Released from Brain Slices, P. Plotsky, R. M. Wightman, W. Chey, R. N. Adams, *Science*, 197, 904-905 (1977).
10. Liquid Chromatographic Monitoring of CSF Metabolites, R. M. Wightman, P. M. Plotsky, E. R. Strobe, R. Delcore, R. N. Adams, *Brain Res.*, 131, 345-349 (1977).
11. Electrochemical Methods to Measure Catecholamines in Brain, R. Keller, I. Mefford, A. Oke, E. Strobe, J. Conti, R. M. Wightman, P. Plotsky, R. N. Adams, *Mod. Pharmacol. Toxicol.*, 10, 761 (1977).
12. Evaluation of the Basal Plane of Pyrolytic Graphite as an Electrochemical Detector for Liquid Chromatography, R. M. Wightman, E. C. Paik, S. Borman, M. A. Dayton, *Anal. Chem.*, 50, 1410-4414 (1978).
13. In Vivo Voltammetry: Monitoring of Dopamine Metabolites in CSF Following Release by Electrical Stimulation, R. M. Wightman, E. Strobe, P. Plotsky, R. N. Adams, *Brain Res.*, 159, 55-68 (1978).
14. Electrochemical Measurement of Release of Dopamine and 5-Hydroxytryptamine from Synaptosomes, M. A. Dayton, G. E. Geier, R. M. Wightman, *Life Sci.*, 24, 917-924 (1979).
15. Electroreduction of Retinal. Formation of Pinacol in the Presence of Malonate Esters, L. A. Powell, R. M. Wightman, *J. Am. Chem. Soc.*, 101, 4412-4413 (1979).
16. Spectroelectrochemistry of Retinal Electrodimerization in the Presence of Proton Donors. L. A. Powell, R. M.

- Wightman, J. *Electroanal. Chem. Interfacial Electrochem.*, 106, 377-390 (1980).
17. Small-Volume Electrochemical Detector for Microcolumn Liquid Chromatography, Y. Hirata, P. T. Lin, M. Novotny, R. M. Wightman, *J. Chromatogr. Biomed. Appl.*, 181, 287-294 (1980).
 18. Faradaic Electrochemistry at Microvoltammetric Electrodes, M. A. Dayton, J. C. Brown, K. J. Stutts, R. M. Wightman, *Anal. Chem.* 52, 946-950 (1980).
 19. Response of Microvoltammetric Electrodes to Homogeneous Catalytic and Slow Heterogeneous Charge Transfer Reactions, M. A. Dayton, A. G. Ewing, R. M. Wightman, *Anal. Chem.*, 52, 2392-2396 (1980).
 20. Mechanism of Electrodimerization of Retinal and Cinnamaldehyde, L. A. Powell, R. M. Wightman, *J. Electroanal. Chem. Interfacial Electrochem.*, 117, 321-333 (1981).
 21. Direct Measurement of the Effect of Potassium, Calcium, Veratridine, and Amphetamine on the Rate of Release of Dopamine from Superfused Brain Tissue, R. M. Wightman, C. E. Bright, J. N. Caviness, *Life Sci.*, 28, 1279-1286 (1981).
 22. Instrument Design for Pulse Voltammetry with Microvoltammetric Electrodes, A. G. Ewing, R. Withnell, R. M. Wightman, *Rev. Sci. Instrum.*, 52, 454-458 (1981).
 23. Spectroelectrochemistry of N-Retinylidene-n-butylamine, K. J. Stutts, L. A. Powell, R. M. Wightman, *J. Electrochem. Soc.*, 128, 1248-1254 (1981).
 24. Pulse Voltammetry with Microvoltammetric Electrodes, A. G. Ewing, M. A. Dayton, R. M. Wightman, *Anal. Chem.*, 53, 1842-1847 (1981).
 25. Evaluation of Amphetamine-Induced *In Vivo* Electrochemical Response, M. A. Dayton, A. G. Ewing, R. M. Wightman, *Eur. J. Pharmacol.*, 75, 141-144 (1981).
 26. Direct Amperometric Measurement of the Rate of Release of Dopamine from Superfused Brain Tissue, R. M. Wightman, J. N. Caviness, A. M. Hmelovsky. In: Function and Regulation of Monamine Enzymes: Basic and Clinical Aspects; Usdin, E.; Weiner, N.; Youdim, M. B., Eds.; Macmillan: London, pp. 781-789 (1981).
 27. Microvoltammetric Electrodes, R. M. Wightman, *Anal. Chem.*, 53, 1125A- 1130A (1981).
 28. Determination of γ -Aminobutyric Acid by Liquid Chromatography with Electrochemical Detection, W. L. Caudill, G. P. Houck, R. M. Wightman, *J. Chromatogr. Biomed. Appl.*, 227, 331-339 (1982).
 29. Integration of Differential Pulse Voltammograms for Concentration Measurements, K. J. Stutts, M. A. Dayton, R. M. Wightman, *Anal. Chem.*, 54, 995-998 (1982).
 30. *In Vivo* Voltammetry with Electrodes that Discriminate between Dopamine and Ascorbate, A. G. Ewing, R. M. Wightman, M. A. Dayton, *Brain Res.*, 249, 361-370 (1982).
 31. Trinitrobenzenesulfonic Acid: A Chromophore, Electrophore and Pre- Column Derivatizing Agent for HPLC Determination of Alkyl Amines, W. L. Caudill, R. M. Wightman, *Anal. Chim. Acta*, 141, 269-278 (1982).
 32. Use of Rapid Superfusion to Differentiate the Release of Dopamine from Striatal Tissue Induced by Sympathomimetic Amines from Release Induced by Potassium, J. N. Caviness, R. M. Wightman, *J. Pharmacol. Exp. Ther.*, 223, 90-96 (1982).

33. Flow Rate Independent Amperometric Cell, W. L. Caudill, J. O. Howell, R. M. Wightman, *Anal. Chem.*, 54, 2532-2535 (1982).
34. Voltammetric Techniques for the Analysis of Biogenic Amines, R. M. Wightman, M. A. Dayton. In: Analysis of Biogenic Amines; Baker, C. B.; Coutts, E. T., eds.; Elsevier: New York, pp. 237-266 (1982).
35. Simultaneous Electrochemical and Unit Recording Measurements: Characterization of the Effects of D-Amphetamine and Ascorbic Acid on Neostriatal Neurons, A. G. Ewing, K. D. Alloway, S. D. Curtis, M. A. Dayton, R. M. Wightman, G. V. Rebec, *Brain Res.*, 261, 101-108 (1983).
36. Electrocatalysis of Ascorbate Oxidation with Electrosynthesized, Surface Bound Mediators, K. J. Stutts, R. M. Wightman, *Anal. Chem.*, 55, 1576-1579 (1983).
37. Direct In Vivo Monitoring of Dopamine Released from Two Striatal Compartments, A. G. Ewing, J. C. Bigelow, R. M. Wightman, *Science*, 221, 169-170 (1983).
38. Diffusion Processes Measured at Microvoltammetric Electrodes in Brain Tissue, M. A. Dayton, A. G. Ewing, R. M. Wightman, *J. Electroanal. Chem.*, 146, 189-200 (1983).
39. Determination of some polyaromatic compounds by reversed-phase liquid chromatography with electrochemical detection, W. L. Caudill, M. V. Novotny, R. M. Wightman, *J. Chromatogr.*, 261, 415-418 (1983).
40. Enhanced Electrochemical Reversibility at Heat-Treated Glassy Carbon Electrodes, K. J. Stutts, P. M. Kovach, W. G. Kuhr, R. M. Wightman, *Anal. Chem.*, 54, 1632-1634 (1983).
41. Liquid Chromatography with Rapid Scanning Electrochemical Detection at Carbon Electrodes, W. L. Caudill, A. G. Ewing, S. Jones, R. M. Wightman, *Anal. Chem.*, 55, 1877-1881 (1983).
42. γ -Aminobutyric Acid Stimulates the Release of Endogenous Ascorbic Acid from Rat Striatal Tissue, J. C. Bigelow, D. S. Brown, R. M. Wightman, *J. Neurochem.*, 42, 412-419 (1984).
43. Ultrafast Voltammetry and Voltammetry in Highly Resistive Solutions With Microvoltammetric Electrodes, J. O. Howell, R. M. Wightman, *Anal. Chem.*, 56, 524-529 (1984).
44. Monitoring the Stimulated Release of Dopamine with *In Vivo* Voltammetry. I: Characterization of the Response Observed in the Caudate Nucleus of the Rat, W. G. Kuhr, A. G. Ewing, W. L. Caudill, R. M. Wightman, *J. Neurochem.*, 43, 560-569 (1984).
45. Monitoring the Stimulated Release of Dopamine with *In Vivo* Voltammetry. II: Clearance of Released Dopamine from Extracellular Fluid, A. G. Ewing, R. M. Wightman, *J. Neurochem.*, 43, 570-577 (1984).
46. In vitro comparison of the selectivity of electrodes for in vivo electrochemistry, P. M. Kovach, A. G. Ewing, R. L. Wilson, R. M. Wightman, *J. Neurosci. Methods*, 10, 215-227 (1984).
47. Methods to Improve Electrochemical Reversibility at Carbon Electrodes, R. M. Wightman, M. R. Deakin, P. M. Kovach, W. G. Kuhr, K. J. Stutts, *J. Electrochem. Soc.*, 131, 1578-1583 (1984).
48. Electron Transfer from Aromatic Hydrocarbons and Their π -Complexes with Metals. Comparison of the Standard Oxidation Potentials and Vertical Ionization Potentials, J. O. Howell, J. M. Goncalves, C. Amatore, L. Klasinc, R. M. Wightman, J. K. Kochi, *J. Am. Chem. Soc.*, 106, 3968-3976 (1984).
49. Ultrafast Voltammetry of Anthracene and 9,10-Diphenylanthracene, J. O. Howell, R. M. Wightman, *J. Phys.*

- Chem., 88, 3915-3918 (1984).
50. Striatal Dopamine Uptake in the Rat: In Vivo Analysis by Fast Cyclic Voltammetry, J. A. Stamford, Z. L. Kruk, J. Millar, R. M. Wightman, *Neurosci. Lett.*, 51, 133-138 (1984).
 51. Derivatives of Ammonia, R. C. Reed, R. M. Wightman. In: *Encyclopedia of Electrochemistry of the Elements*; Bard, A. J.; Lund, H., Eds.; Marcel Dekker: New York, V. XV, pp. 1-165 (1984).
 52. The Effect of pH on Some Outer-sphere Electrode Reactions at Carbon Electrodes, M. R. Deakin, K. J. Stutts, R. M. Wightman, *J. Electroanal. Chem.*, 182, 113-122 (1985).
 53. Amphetamine Attenuates the Stimulated Release of Dopamine *In Vivo*, W. G. Kuhr, A. G. Ewing, J. A. Near, R. M. Wightman, *J. Pharmacol. Exp. Ther.*, 232, 388-394 (1985).
 54. Systemic and Nigral Application of Amphetamine Both Cause an Increase in Extracellular Concentration of Ascorbate in the Caudate Nucleus of the Rat, R. L. Wilson, R. M. Wightman, *Brain Res.*, 339, 219-226 (1985).
 55. Faradaic Electrochemistry at Microcylinder, Band and Tubular Band Electrodes, P. M. Kovach, W. L. Caudill, D. G. Peters, R. M. Wightman, *J. Electroanal. Chem.*, 185, 285-295 (1985).
 56. Comparison of Release of Endogenous Dopamine and γ -Aminobutyric Acid from Rat Caudate Synaptosomes, W. L. Caudill, J. C. Bigelow, R. M. Wightman, *Neurochem. Res.*, 10, 319-331 (1985).
 57. Electrochemical, Pharmacological and Electrophysiological Evidence of Rapid Dopamine Release and Removal in the Rat Caudate Nucleus Following Electrical Stimulation of the Median Forebrain Bundle, J. Millar, J. A. Stamford, Z. L. Kruk, R. M. Wightman, *Eur. J. Pharmacol.*, 109, 341-348 (1985).
 58. Electroanalytical Properties of Band Electrodes of Submicrometer Width, K. R. Wehmeyer, M. R. Deakin, R. M. Wightman, *Anal. Chem.*, 57, 1913-1916 (1985).
 59. Cyclic Voltammetry and Anodic Stripping Voltammetry with Mercury Ultramicroelectrodes, K. R. Wehmeyer, R. M. Wightman, *Anal. Chem.*, 57, 1989-1993 (1985).
 60. Modulation of Neostriatal Activity by Iontophoresis of Ascorbic Acid, T. W. Gardiner, M. Armstrong-James, J. W. Caan, R. M. Wightman, G. V. Rebec, *Brain Res.*, 344, 181-185 (1985).
 61. Scan Rate Dependence of the Apparent Capacitance at Microvoltammetric Electrodes, K. R. Wehmeyer and R. M. Wightman, *J. Electroanal. Chem.*, 196, 417-421 (1985).
 62. *In Vivo* Comparison of the Regulation of Releasable Dopamine in the Caudate Nucleus and the Nucleus Accumbens of the Rat Brain, W. G. Kuhr, J. C. Bigelow, R. M. Wightman, *J. Neurosci.*, 6(4), 974-982 (1986).
 63. Dispersion in Flow Injection Analysis Measured with Microvoltammetric Electrodes, E. W. Kristensen, R. L. Wilson, R. M. Wightman, *Anal. Chem.*, 54, 986-988 (1986).
 64. Heterogeneous Mechanisms of the Oxidation of Catechols and Ascorbic Acid at Carbon Electrodes, M. R. Deakin, P. M. Kovach, K. J. Stutts, R. M. Wightman, *Anal. Chem.*, 58, 1474-1480 (1986).
 65. Electrochemical Kinetics at Microelectrodes Part I. Quasi-reversible Electron Transfer at Cylinders, C. A. Amatore, M. R. Deakin, R. M. Wightman, *J. Electroanal. Chem.*, 206, 23-36 (1986).

66. The Kinetics of Some Substituted Catechol/*o*-quinone Couples at a Carbon Paste Electrode, M. R. Deakin, R. M. Wightman, *J. Electroanal. Chem.*, 206, 167-178 (1986).
67. Crus cerebri lesions abolish amphetamine-induced ascorbate release in the rat neostriatum, R. L. Wilson, K. Kamata, J. C. Bigelow, G. V. Rebec, R. M. Wightman, *Brain Res.*, 370, 393-396 (1986).
68. Background Subtraction for Rapid Scan Voltammetry, J. O. Howell, W. G. Kuhr, R. E. Ensmen, R. M. Wightman, *J. Electroanal. Chem.*, 209, 77-90 (1986).
69. Real-time measurement of dopamine release in rat brain, W. G. Kuhr, R. M. Wightman, *Brain Res.*, 381, 168-171 (1986).
70. Effects of Restricted Diffusion at Ultramicroelectrodes in Brain Tissue. The Pool Model: Theory and Experiment for Chronoamperometry, C. Amatore, R. S. Kelly, E. W. Kristensen, W. G. Kuhr, R. M. Wightman, *J. Electroanal. Chem.*, 213, 31-42 (1986).
71. Electrochemistry at Partially Blocked Carbon-Fiber Microcylinder Electrodes, P. M. Kovach, M. R. Deakin, R. M. Wightman, *J. Phys. Chem.*, 90, 4612-4617 (1986).
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